



The fact and challenges of digital transformation of HRM in Higher Education institution in Algeria

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Abstract:

This study seeks to explore the reality and challenges of digital transformation (DT) in Human resource management (HRM) practices in higher education (HE), especially after Covid 19 pandemic, which launch several platforms such as (progress, Moodle). The field study included several interviews with heads of HR departments, and a questionnaire was distributed to 60 employees of these departments, included practices of recruitment, training, compensation and performance evaluation, it analyzed using the SPSS statistical program.

The study reached results, the most important of which is that there are efforts to digitally transform HRM in HE institutions, mainly represented by the Progress platform, but the process does not include all practices, as recruitment and training processes in particular are still carried out in classical ways. The main challenges are the cost and the resistance, not to mention the centralization of Progress platform, and other challenges prevented the achievement of a (DT) of HRM in these institutions.

Keywords: Digital Transformation (DT), Human Resources Management (HRM), HRM practices, higher education (HE).

Jel Classification Codes: O33, M54, M54 , A21

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1. Introduction:

1.1. Research background:

During this decade, the world witnessed many events that changed its priorities and management methods. The information revolution, due to technological developments and successive crises, imposed major changes and enhanced the importance of moving towards digitization, and increased reliance on it in the field of management and administration for the many advantages it provides, and it has even become necessary to keep pace with future requirements. Like most fields of work, (HRM) has moved towards digitizing its operations and practices, in a desire to manage its business effectively. However, this transformation is met by requirements, challenges and a reality that organizations live in that may enable them to achieve this or prevent it.

(HE) as a pivotal sector has about 1 million and 700 thousand students distributed across 111 institutions, supervised by 63 thousand professors according to statistics from the beginning of 2023. The sector has witnessed many changes and developments recently: driven by the remnants of the restrictions of the Covid-19 pandemic crisis, and the requirements of twinning education and technology, in addition to the desire to catch up with the leading universities. all of which are factors that have strengthened the Ministry of HE's orientation towards adopting strategies based on (DT) in its various tasks: such as approving platforms for distance learning (moodle), a platform for managing student, professor and human resources affairs (progress), a university library management system (SYNGEP) and a platform for managing scientific journals and publications (ASJP). However, these requirements should not be based on improving scientific and pedagogical performance only, but must include establishing technology in every (HE) sector to include all its pillars, students, professors and administrators. Therefore, we must find a role for technology even at the level of its various management, including (HRM), which it is the responsible management about employees,

cadres and professors as the main engine that enables the ministry to perform its tasks.

1.2.Problem statement:

The Progress platform was launched as a platform for (HRM) in the Ministry of Higher Education, but the question remains about the extent of digital transformation (DT) of (HRM), as following:

"What is the fact and challenges of (DT) in (HRM) practices in (HE) institutions in Algeria?"

Because we are researching specific (HRM) practices, the main question was divided into a set of sub-questions:

1. Is there a (DT) of recruitment in (HE) institutions in Algeria?
2. Is there a (DT) of the training in (HE) institutions in Algeria?
3. Is there a (DT) of compensation in (HE) institutions in Algeria?
4. Is there a (DT) of performance evaluation in (HE) institutions in Algeria?
5. What are the challenges of (DT) to (HRM) practices in (HE) institutions in Algeria?

1.3. Research significance

The study seeks to further investigate the (DT) adopted by the Ministry of (HE) in its various directorates, including the digitization of (HRM). The focus will be on specific practices known in international literature as traditional practices (Pankaj & Karunesh, 2012), considering them as the primary practices in (HRM) which are recruitment, compensation, training, performance evaluation

1.4. Research objectives:

The purpose of this study is to make evident and explore the extent of (DT) that (HRM) has achieved in its practices. the most important objectives are:

- Presenting the theoretical foundations of (HRM) and (DT);
- Reviewing the digitization of (HRM) in terms of requirements, stages, importance, and challenges;

- Identifying the most important procedures and programs adopted by the Ministry and institutions of (HE) in the field of (DT), and (DT) of (HRM);
- Revealing the reality of the (DT) of (HRM) practices in higher education institutions in Algeria through a statistical study, and Extracting the challenges facing that;
- Providing some recommendations.

2. Theoretical framework:

2.1. Digital transformation (DT):

The concept of (DT) is associated with the Fourth Industrial Revolution, which has changed many concepts and crystallized them in a form that suits its requirements. (Jee, 2017) says that the industrial revolution is the impact of technology, the Internet and computers on various sectors of development and work. This impact has appeared on materials, robots, nanotechnology, 3D printing, drones, self-driving cars, digital computing and globalization. This has led to (DT), which (Paters, 2019) defined as the comprehensive (DT) in all industrial and service fields that have linked areas of life to smart digital data and the Internet, including digital communications, e-government, big data and the information revolution. The process of (DT) requires changes at many levels to occur, including enabling a culture of creativity in the work environment, and includes changing the basic components of work, starting from infrastructure, operating models, and ending with marketing services and products, according to (Al-Sayed, 2020). (DT) is investing in thought and changing behavior to bring about a radical shift in the way of work, by taking advantage of the great technical development to provide a service in a better way and at a faster speed. Accordingly, (DT) is primarily related to modern technology from devices, networks, virtual worlds and artificial intelligence and the revolution it has caused in the processes of manufacturing, processing and transferring data and information and using it in a way that facilitates and accelerates the achievement of the desired goals.

2.2. (DT) in (HRM):

HRM is the department responsible for implementing the strategy of (HRM) in the organization through related practices that include recruitment, training, compensation, motivation, performance evaluation, empowerment, etc., and other practices that direct these sources towards implementing the organization's strategy and achieving integration between the goals of individuals and the goals of the organization (Ghennam, 2018).

(DT) of (HRM) refers to the developments and changes that occur in HR practices and functions through the use of information technology, mainly represented by digital tools, applications and artificial intelligence models.

According to a survey study that included more than 500 companies in Britain, it was revealed that there is a great trend for institutions to adopt (DT) in (HRM) (Youcef, 2017), as the results of the table show.

Table (1): HRM digitization

Digitization aspects	Redesigning HR for DT	Redesigning the Organization for DT	HR Using Technology and Artificial Intelligence	Using Mobile Apps to Deliver HR Services
% from 500 enterprises	56	51	33	41

Source: prepared by researcher according to the study of (Youcef, 2017).

It is noted from the table that a large percentage of institutions have redesigned their HR needs for DT because DT requires new skills other than those previously required, such as the need to master the principles of information systems, use smart applications and the Internet, etc. A large percentage also redesigned their structure to suit the requirements of DT, which shows that DT has become an urgent necessity that affects all organizations and functions, including the HRM function.

2.3. DT of HR practices :

- **DT of recruitment:** It is defined as “the use of information and communication technology, including the Internet, in the procedures for providing the necessary HR.” (Bharathi & Saraswathy, 2022). E-recruitment contributes to bridging the gap between job seekers and job applicants by providing information about both parties (Mekerri, 2015). E-recruitment includes:
 - ✓ Digital leadership: It includes creating a networked organizational structure in which work is done on job analysis
 - ✓ Computer-based job planning to determine future worker needs and develop recruitment plans based on decision support systems, expert systems, artificial neural network systems and artificial intelligence.
 - ✓ Selection and appointment based on recruitment and sending CVs and tests, whether written or oral, that are conducted via the Internet, social media sites or platforms.
- **(DT) of Training:** By reviewing the study (Rego, Lourenço, & Fernando, 2023) which focused on researching the relationship between (DT) and the efficiency required in the labor market, which focused on axes such as digital literacy, use of digital technologies in teaching; learning models; workforce qualification or re-skilling; digital technologies in the labor market. The result was that (DT) has had a strong impact on the way people do business, work and live, due to the emergence of new digital technologies in the labor market, changing the skills required by the labor market. Digital literacy is ever more crucial for citizens and workers. Another change caused by digital transformation is about the qualification or requalification of the workforce, because only with a staff qualified for the new technologies will organizations be able to implement digital strategies.

Since technological development depends primarily on innovation, it needs learning and continuous learning. Proper (HRM) is the one that provides a system that allows HR to continue capture this

new knowledge, in order to integrate it into the (DT) process. In addition, to provide the human worker with digital skills and competencies that enable the creation of the digital identity of the organization. Thus, it achieves a balance between the requirements of technical development and the skills of individuals. In this context, many organizations have taken bold steps such as:

- Developing the traditional learning system and replacing it with digital educational platforms;
- Integrating external education via the Internet and Zoom applications;
- Providing collaborative digital education platforms, in which workers and employees share any knowledge or information they deem necessary to perform their work;
- Using external expertise to hold training courses in the fields of digitization;
- Joining the membership of research and development programs in the field of work;
- Providing interaction and simulation models.

It is known that training and learning in the (DT) are available and accessible at any time and in any place. In addition to the low costs of learning, whether direct or indirect (teachers, paper publications, educational facilities, travel or accommodation costs, etc.). However, this does not negate the fact that technology is expensive and requires great skills to master it and convey information related to it.

• **(DT) of compensation :**

The process of compensating individuals, starting from paying their dues to the methods of motivating and rewarding them, is affected by the (DT). The performance of this task by the (HR) department has become dependent on efficient electronic payment systems; that are concerned with issuing electronic receipts and notifications related to the financial aspects of employees, such as: wages, salaries, insurance, etc. According to the study of (Sai, Ran, Mengna, & Lv, 2022) digital

technology application can raise average employees compensation by improving gross operating income, optimizing human resource allocation, and boosting total factor productivity.

- **(DT) of Performance appraisal:**

The performance evaluation process is practiced in light of the (DT) in many forms that are consistent with the orientations and efficiency of the control system in each organization. Among the tasks of digital performance evaluation, we find:

- Using data to analyze human resources performance;
- Self-appraisal tests via the Internet, electronic platforms and applications.

(DT) tools represented by smart electronic processes also contribute to improving performance by reducing costs in the monitoring and evaluation process, and improving the efficiency of HR.

3. Literature review

3.1. The impact of (DT) on HRM practices:

Some studies have addressed the topic of (DT) and (HRM) practices, while other studies have addressed the topic of (DT) in (HE) institutions. For example, we find a study of (Bashir, 2023) that aimed to identify the impact of digital (HRM) (relational, operational and transformational) on empowerment practices, performance evaluation and training, and concluded that there is a significant impact of digital (HRM) (relational and transformational) on (HRM) practices, unlike operational digital management, which had no impact on (HRM) practices.

There is also a study by (Rosa, 2024) that examined the tools used by universities to achieve (DT), and the fundamental changes brought about by (DT) using a questionnaire directed to a sample of university professors at the Faculty of Business Administration at the University Center of El-Kolea. The study concluded that Google Meet is one of the most important means used to encourage distance education. Training was the most effective means of enabling technology, as

internal training for students and self-training by professors were adopted, in addition to online training. The study also provided important recommendations, most notably building a clear strategy for (DT) and enhancing training to include this transformation in all aspects of (HE) institutions.

Another field study of (Ben Taiba & khalil, 2022) using a questionnaire monitored the respondents' answers about the dimensions of (DT) (structural and organizational dimension, functional dimension, technical and media dimension) on change management at the university. It concluded that there is an impact of the functional dimension, the media and technical dimension, and change management, and there is no relationship between the structural dimension and the dependent variable. As well the study of (Hafiz & Bouguerra, 2022) although the study was titled "Implementing Electronic HRM", it actually addressed the digitization of the higher education sector as a whole, focusing on the PROGRESS system. The study concluded its importance in the comprehensive management of all university affairs electronically.

What distinguishes our study is the combination of those variables which mean investigating the reality and challenges of the (DT) of (HRM) practices in a higher education institution.

3.2.The importance of digital transformation in human resources management

According to many studies Digitization has brought about significant and positive changes in HR management practices. Moving away from paper-based systems to computerized databases, HR functions have become more efficient and effective. Some of the positive effects can be summarized as follows:

improving performance: Digital transformation methods contribute to accessing and easily examining a lot of data about employees regarding their attendance and performance, which enables building an assessment of their strengths, weaknesses and performance in general. Smart electronic processes also enable reducing costs in the monitoring and evaluation process.

Improve decision-making through data accuracy and transparency, as organizations can pinpoint trends, discover patterns, and foresee scenarios accurately

Enables appropriate motivation as a result of the correct and impartial performance evaluation process due to data processed by technological means.

According to (Sherif, 2023) Digitization is the complete representation of all employee information and data, and the process of integrating it with social media platforms such as LinkedIn, Facebook and Twitter and linking it to one platform for accurate and quick retrieval, enabling access to the employee's job history, interests and competencies. Thus, it optimize staffing processes, In the same context, digitization improves the recruitment process by processing large amounts of data such as checking the CV and qualifications of candidates in a way that saves time and effort. It also manages job advertisements, applications and sets pre-determined criteria for recruitment, which saves time and ensures fairness (Muthna & Prasad, 2024) .

Digitization develop tailored training programs because it ensures the transition from traditional learning to e-learning and online learning, which has proven effective (Rifki, Muhammad, & Kusuma, 2024).

Reducing the costs of storing, processing and quickly obtaining employee data, and also by providing self-service through the creation of portals and platforms that enable the extraction of documents that fall within the jurisdiction of human resources management (Sherif, 2023).

The great control over traditional human resources management tasks through digitization has enabled individuals to move to devote themselves and focus more on developing the organization's strategy (Adambarage, Berislav,, & Marko, 2022), creativity and innovation, which has had a positive impact on the productivity of organizations. Digitization has also enhanced the values of participation and belonging through fair performance evaluation processes and appropriate motivation and compensation (Cruz, 2024).

4. (DT) of HRM in the Ministry of (HE) in Algeria

4.1. (DT) steps in the Ministry of (HE):

The Ministry of (HE) has taken many steps in the field of digitization through approved applications and platforms in the scientific,

pedagogical and even administrative fields. The following is a review of the most important of these steps:

- **Moodle platform:** was approved starting from March 15, 2020. After the widespread outbreak of the Covid 19 pandemic, in a correspondence from the Ministry of (HE). It is a pedagogical initiative that includes establishing a mechanism that allows students to continue receiving their lessons remotely free, and maintaining communication between professors and students, knowing that professors are the pedagogical designers of the content of these lessons. With the continuation of the pandemic, the Ministry approved the continuation of hybrid education between in-person and remote education as part of precautionary measures. (Article 3, 4 in official journal, 2021) Although many studies were presented in which 80% of students stated that they prefer in-person education over remote education.
- **PROGRESS platform) abbreviation** for project of management of HE and research;) it is an information system adopted by the Ministry of (HE) since 2016. It ensures comprehensive management of students' pedagogical affairs; it contains 25 digital platforms, as it has carried out 5 million student registrations since its launch. The system includes many portals, some of which are specific to local and foreign students and some of which are specific to employees (zaiad, 2022). PROGRESS is concerned with pedagogical management, (HRM), as its goal in this field was to establish an integrated system for managing HR in addition to managing university services such as housing, transportation, grants, etc. (directorate of training, 2023)
- **Syllabus system:** It is also a distance-learning platform developed by the Moodle program, and it is an interactive pedagogical digital means of communication between the lecturer and the student that includes all the important information about the lessons and how to obtain them. SYNGEP (System of Library Management): It is a system adopted for the automated management of libraries (their contents of books, memoirs and annals, etc.), developed at the

level of the Department of Collection, Processing and Research at the Scientific and Technical Research Center 'Cerist' in Algeria in 1990. It operates under the Windows system and is available with two display interfaces, French and Arabic, for all its sections. This system has been generalized at the level of all libraries of university colleges and institutes and is currently being used. This system also provides an online electronic index that can be viewed from anywhere and by an unlimited number of users (Central Library). The system has many advantages, as it allows the unification of references in an Algerian edition, documents doctoral theses and master's theses, as it contains a national portal for notification of theses (PNST) that have been discussed or are still under construction.

- **Algerian Scientific Journal Platform (ASJP):** It is a digital portal for placing and following up on scientific articles and publishing scientific journals. It was created by the research center (cerist), and its management and administration are the tasks of the university or college that created the journal Algerian (Mubarek, 2020)
- **National Online Documentation System (SNDL)**

We also do not miss the professional email pages of each university, social media (Facebook, Twitter, Viber, Instagram) of the ministry, universities, institutes, and even colleges and departments, official pages on search engines, etc.

4.2. Aspects of the (DT) of (HRM) in (HE) institutions in Algeria:

The Ministry of (HE) includes a directorate related to (DT) and a directorate related to (HRM), where the tasks of each one are:

- The Directorate of Networks and Digital Development; is responsible for designing and supporting strategies for developing technology and information for research and education. Facilitating access to high-quality digital tools and services by implementing an effective information system and developing social networks for institutions under guardianship. Is also

developing a training policy for its users, and other tasks, includes four directorates: the Sub-Directorate of Basic Structures and Networks, the Sub-Directorate of Information Systems, the Sub-Directorate of Information Security, the Sub-Directorate of Knowledge Support Systems and Digitization (official Gazette, 2021).

- The HR Directorate at the level of the Ministry of HE: consists of four sub-directorates; the Sub-Directorate of Professors and Researchers. Sub-Directorate of Users of the Central Administration and Sector Institutions. Sub-Directorate of Training, Improvement of Level and Renewal of Knowledge. Sub-Directorate of Executives (HE ministry official website, 2022). It is responsible for the HR distribution policy and determining recruitment criteria, organizing teacher evaluation courses, preparing training and improvement plans, setting promotion criteria and other tasks related to financial positions (official Gazette, article 3, 2021).

At the university level, the (HRM) Department includes the Head of the Personnel and Administrators Department, the Sub-Director of Users and Training, the Office of Employee Relations and Follow-up of Commitment and Attendance, the Office of File Storage and Performance Evaluation and Follow-up of Employees' Career Path, the Office of Planning, Recruitment, Development and Digitalization of HRM.

The goal of the PROGRESS system was to establish an integrated (HRM) system that is concerned in this area with:

- ✓ Managing electronic registrations in the various paths of professors' candidacy (master's, doctorate) as the PROGRESS portal ensures the completion of the placement of files in an easy and convenient way without the hassle of moving, transparency in dealing with files, and shortening the processing times for you through links specific to each case

- ✓ Updating the status of the professor and employee through the possibility of including scientific and pedagogical works and the development of scientific research projects
- ✓ The task of appointing professors and employees by providing links specific to placing recruitment competition files;
- ✓ The task of promotion to the higher rank (university qualification and professorship) through special links for that;
- ✓ Preparing payrolls for professors and employees;
- ✓ Following up on medical files and academic holidays.

Thus, we note that the Ministry, through the Progress system, has tried as much as possible to digitize some necessary HRM practices, and we will try to investigate the matter further through field study.

2. Practical framework:

4.1. Research methodology :

This study used an exploratory statistic and descriptive manner relation studies, the statistical methods used are the arithmetic mean, standard deviation, percentage, median, correlation coefficient, Cronbach's alpha, this result are achieved by using SPSS statistic

4.2. Study tools:

The questionnaire was adopted as the most appropriate to serve the study topic, in addition to the interviews, which were described in the following table:

Table 02: Validity and reliability test

Questionnaire axes	Statements	Cronbach's alpha coefficient	Cronbach's alpha coefficient root
	Job Analysis & Design	0.658	0.811
	Employement Planning	0.546	0.739
	Attraction	0.670	0.871
	Staffing	0.552	0.742
Recruitment		0.602	0.775
Training		0.620	0.787
Compensation		0.611	0.781
Performance Evaluation		0.624	0.789
Total		0.614	0.783

Source: Prepared by the researcher based on SPSS program.

From the table above, considering that it falls between (60% and 70%). Alpha-Corbach coefficient is an acceptable value, because its value ranged between (0.602 and 0.624) for the various axes, while it reached (0.614) for total. That means the study tool is characterized by stability and accuracy.

the validity coefficient reached a value ranging between (0.775 and 0.789) for the various questionnaire axes and reached a value of (0.783) for the total axes, which are high values that make the questionnaire suitable for application and testing the study hypotheses, and give us complete confidence in the results that were reached.

4.3.The sample: consists of employees in the (HRM) Department, a facilitated sample consisting of 60 employees from the universities of Oum El Bouaghi, Tebessa and Khenchela. Due to the small sample size, the response rate was 100%, meaning that all distributed questionnaires were retrieved. The questionnaire was distributed and collected manually during working hours.

4.4.Testing the hypotheses:

The study used the graphic ranking scale to measure the variables, which is known as the five-point Likert scale, to measure the sample's

response and provide a judgment on it, which we will explain in the following table:

Table 3: The five-point Likert scale

Weight	1	2	3	4	5
Length	1-1.80	1.80 – 2.60	2.60- 3.40	3.40- 4.20	4.20- 5.00
Degree	Strongly disagree	disagree	Somewhat agree	Agree	Strongly agree

Source: prepared by author depend on (Taherdoost, 2019).

4.4.1. The first hypothesis H1: there is a (DT) of (HRM) in (HE) institution.

A. H11: There is a (DT) of recruitment in (HE) institutions.

The sample answers were shown in the following table:

Table 4: Sample responses on recruitment variable

Statements	1	2	3	4	5	M	SD	D
job Analysis and Design						2.50	0.762	didisagree
There is a database describing the tasks and activities of each job.	7	11	19	14	9	3.11	0.366	Somewhat agree
Digital software and applications are used to define the specifications of each job.	5	40	8	7	0	2.28	1.25	disagree
Electronic programs and applications are used to design the appropriate functional structure in each department and administration in the organization.	15	25	10	7	3	2.30	0.533	disagree
Smart programs and electronic applications are used to determine the specifications of each job holder.	13	27	11	6	3	2.31	0.633	disagree
employment planning						2.57	0.344	disagree
The organization relies on digital applications and programs to plan the required human resources.	19	17	8	9	7	2.46	0.233	disagree
There are digital or smart means that enable the exchange of information between different interests to determine employee needs.	21	17	8	9	5	2.25	0.30	disagree

The transfer and upgrade process depends on digital means that determine that.	8	17	10	16	9	3.01	0.50	Somewhat agree
Attraction						3.04	0.424	Somewhat agree
HRM relies on digital and electronic media to advertise the recruitment process.	4	7	16	24	9	3.45	0.583	agree
You think that digital media enables attracting talent more than traditional means.	14	19	10	9	8	2.63	0.267	Somewhat agree
Staffing						2.54	0.383	Disagree
The institution relies on digital or smart media in the process of selecting and appointing its employees	12	16	13	10	9	2.80	0.183	Somewhat agree
Written or oral tests are conducted to select and appoint employees and work through digital means (platforms, applications, websites, ...)	10	42	8	0	0	1.96	1.233	disagree
These digital means have enabled the employment of real qualifications	13	14	11	12	10	2.87	0.116	Somewhat agree

M: mean, SD: standard deviation, D: degree of agree

Source: prepared by author based on SPSS.

From the table, we note that the phrases of job analysis and design were not approved by the sample; the average agreement was (2,50), That is due because of the absence of a database describing the tasks and activities of each job, designing the job structure, determining the specifications required for job holders. Job design processes are still either transferred from an imported foreign model, or according to the subjective vision of officials, and sometimes they are created by legal texts or decrees without any intervention by digitization in determining this.

The planning take a direction of disagreement with an average agreement of (2.55). There are no smart applications, programs and sites enable exchanging information between different departments to determine employee needs. The information exchange process is still done according to traditional correspondence, but transfer and promotion operations are done through the progress platform according to the work outcome program (public wave).

The approval rate for the attraction was also average with an average of (3.04), the highest approval in the phrases of the appointment axis. The high approval rate is due to the adoption of electronic means such as electronic magazines, official websites and social media in advertising jobs, in addition to the adoption of e-mail services in exchanging information and communication between different interests. The sample also believes that there is relationship between attracting competencies and digitization.

The staffing statements received an approval rate of (2.543), meaning that the sample is heading towards disapproval, as this dimension has the least approval rate of (1.96) regarding the adoption of digital methods in conducting tests, as written and oral selection tests are still conducted in a traditional and in-person manner. Because the university uses traditional methods and tries to use digitization as much as possible, this has increased the costs of the appointment process.

The sample also does not agree that there is a relationship between digitization and the appointment of qualified people. Sometimes, the employee's resume may seem normal, but when conducting personal interviews, a suitable personality for the job appears.

B. H12: There is a (DT) in the training in (HE) institutions

The sample answers were shown in the following table:

Table 5: Sample answers about the training variable

Statements	1	2	3	4	5	M	SD	D
Training courses are held in the use of digital means, smart applications and programs such as electronic security, data analysis, programming, etc.;	7	11	22	7	13	3.13	0.633	Somewhat agree
There are digital means of communication between employees in order to exchange ideas and knowledge	25	33	12	00	00	2.116	0.683	Disagree
The institution seeks to use digital means that contribute to raising the cognitive and scientific level of employees	6	8	21	13	12	3.28	0.400	Somewhat agree
The institution teaches its	17	22	11	6	4	2.30	0.383	Disagree

employees everything new in the field of digitization and technology in its area of competence								
The institution allocates a budget for the education and training process in the fields of digital means and artificial intelligence	17	22	11	6	4	2.30	0.383	Disagree
The institution rewards everyone who provides training courses for employees in the field of digital means	5	22	13	17	3	2.783	0.733	Somewhat agree
There are interactive or simulation-based training programs in your department	24	18	9	6	3	2.10	0.350	Disagree
The institution concludes partnerships aimed at improving the level of workers in the field of digitization	11	16	25	5	3	2.55	0.601	Disagree

Source: prepared by the author based on SPSS.

From the table, we note that the response ranged between disagreement and medium approval (4 statements). The statement (7) received the lowest approval rate with an average of (2.1), which may be due to the low budget allocated for this according to the response to statement (5), or the lack of use of internal or external cadres to improve the level of digitization among employees according to the response to statement (8). The statement (3) received the highest average approval, which reflects the efforts made by the management towards digital transformation, supported by the response to the first and second statement.

c. H13: There is a (DT) of compensation in (HE) institutions.
The sample's answers were shown in the following:

Table 6: Sample's answers about the compensation variable

Statements	1	2	3	4	5	M	SD	D
Payrolls and benefits due to workers are prepared digitally	5	8	12	19	16	3.55	0.283	Agree
The institution uses a compensation system based on electronic or smart means to determine entitlements and incentives	24	23	9	4	0	1.73	0.383	Strongly disagree
The institution grants incentives or privileges to those with creative ideas in the field of digitization	7	19	11	14	9	2.98	0.467	Somewhat agree
Digitization is used to determine a fair and effective compensation system	19	15	11	8	7	2.48	0.267	Disagree
Digital means are used to determine the incentives that employees desire and that enhance their performance	19	22	8	7	4	2.25	0.350	Disagree
Digital means are used to determine the appropriate timing for the process of compensating and motivating the worker	20	22	7	7	4	2.21	0.501	Disagree

Source: Prepared by the researcher based on SPSS outputs.

The compensation statements take the direction of the disapproval, the arithmetic mean ranged between 1.73, the lowest average approval for the second statement, and (2.98) for statement (3), which is an average approval rate. This confirms that there is a quest and encouragement for (DT) within the strategy of senior management. The high approval rate is due to statement (1) with an average of (3.55).

D. H14: there is a (DT) of performance evaluation in (HE) institution. The sample answers were shown in the following table:

Table 7: Sample answers on the performance evaluation variable

Statements	1	2	3	4	5	M	SD	D
The organization relies on digital means of websites/platforms or applications, smart programs to record attendance and shifts of employees and workers	19	18	8	8	7	2.43	0.211	Disagree
The organization relies on digital means to evaluate the performance of individuals in their tasks in terms of their quality and speed	7	12	11	17	13	3.21	0.267	Somewhat agree
Promotions at work are made based on information collected from digital means	14	13	07	12	15	3.06	0.254	Somewhat agree

Source: Prepared by the researcher based on SPSS outputs.

According to the results of Table above, it can be noted that the sample's answers are heading in the direction of their average agreement, as statement (2) received the highest approval rate with an average of 3.21, to be relied upon in the field of promotion (3.06). However, the performance evaluation process has not reached the point of being considered digital, as statement (1) received the sample's disapproval with an average of (2.43).

The following table is to judge the (DT) of HR practices based on the previous results.

Table 8: (DT) of HRM practices according to the sample answers

Axis	Mean	SD	Degree of agree
DT of recruitment	2.67	0.478	somewhat agree
DT of training	2.569	0.527	Disagree
DT of compensation	2.53	0.375	Disagree
DT of performance evaluation	2.90	0.244	somewhat agree
DT of HRM practices	2.62	0.411	somewhat agree

Source: Prepared by the researcher based on SPSS outputs.

According to the table above we discuss the first hypotheses:

- **Accepting H11:** There is a (DT) of recruitment practices, although this transformation is still in the attraction phase only by adopting the PROGRESS platform in submitting recruitment files for professors, employees, and university service managers. This step contributed to transparency in the recruitment process and file follow-up, and reduced the burden of long-distance travel (progress platform, 2022).
- **Rejecting H12:** There is no (DT) of training, as it was limited to submitting internship files electronically on the progress platform, and conducting some courses for professors on how to access and use the MOODLE platform, in addition to the English language teaching platform.
- **Rejecting H13:** There is no (DT) of compensation other than preparing the electronic salary statement. PROGRESS platform contains a HRM portal that is concerned with the professional management of the employee and managing payrolls, skills, and medical follow-up of employees, etc.
- **Accepting H14:** There is a (DT) in performance evaluation. PROGRESS platform as an example was adopted to follow up on the promotion process for (HE) professors and lecturers "A" by submitting application files on the platform. MOODLE platform follow up on the status of lessons.

Following up on scientific research and projects is done via platforms created by the Ministry of Higher Education. However, recording attendance, absence, lateness and the quality of task performance still depends on the evaluation carried out by the supervisor of the service or department, except for signing the entry minutes for periodic professors that are done remotely.
- **Accepting the first hypothesis (H1)** which received an approval rate with an average of 2.62, although it is the minimum scope of approval.

4.3.2. Testing the second hypothesis: H2. There are challenges of (DT) in (HRM) practices in (HE) institutions
the sample answers are shown in the following table:

Table 9: DT of HRM practices challenges

Statements	1	2	3	4	5	M	SD	D
The shift towards using digital tools for HRM is very expensive	3	8	18	16	15	3.03		Agree
There is a lack of competencies responsible for managing digital means for HRM	17	15	8	12	8	3.65		Somewhat agree
You think that it is more difficult to work with means compared to traditional methods in HRM	8	7	18	16	11	3.25		Agree
You think that it is more difficult to work with means compared to traditional methods in HRM	3	8	18	16	15	3.03		Agree
Challenges of (DT) of HRM practices						3.24		agree

Source: prepared by author based on SPSS.

The answers to the axis statements were close and equal in terms of their arithmetic mean. the first and last statements had highest average approval (3.53), which indicates that the most important challenges facing the (DT) of (HRM) in (HE) institutions, according to the sample are the high cost of related software, and the lack of trust in these media and software in terms of maintaining privacy. The sample members' answers about dealing with software being complicated or difficult compared to traditional methods took the direction of approval with an arithmetic mean of (3.25). This indicates that there is some resistance to digital means. While the statement related to the lack of competencies in the field of managing the (DT) of (HRM) had the highest approval rate (3.65). This indicates that the biggest challenge facing (DT) of (HRM) is the resistance of technology , this is due to a lack of competencies, in addition to the need for more preparation in terms of providing the information or infrastructure necessary to fully digitize (HRM) (From interviews).

5. Conclusion

Given the results obtained, a set of results can be presented, accompanied in the same context by a set of recommendations as follows:

- The Progress system is concerned with managing the career path of teachers only, and providing some files electronically, but the matter stops at this point, as many human resources management practices are still carried out in a traditional manner ;
- (DT) in practices through the Progress platform contributed to reducing the effort and time in transferring and following up on files and even storing them;
- Attention to digitizing training and the necessity of training in the field of digitization is an urgent necessity for HR in line with the ministry's objectives, and with the aim of addressing the resistance shown by individuals towards digitization, most of which stemmed from their lack of control over it (according to interviews);
- (DT) of performance evaluation enabled improved compensation, oversight and individual performance, but digital means must be developed to delve deeper into performance evaluation such as recording attendance, absence, lateness, and performing pedagogical tasks, etc.
- (DT) contributed to attracting HR, but the ministry must pay attention to other steps in recruitment.
- The necessity of exploiting the cadres belonging to the Ministry of Higher Education and involving them in developing an effective strategy in the field of digitizing human resources management.
- The possibility of linking the various platforms created by the Ministry for monitoring and evaluating human resources performance may facilitate performance evaluation, compensation and motivation practices.
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